Public Workshop
2016 Rate Determination
Field Study Methodology

CalRecycle

Introduction

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Introduction

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Rate Determination Section

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Agenda

- Workshop purpose
- Workshop changes from past years
- The current California recycling environment
- Alternative ways to reimburse CRV
- Chosen/current survey methodology
- Survey sites/sample size
- Questions/complaints from consumers/industry stakeholders
- Questions / comments / input / ideas

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Workshop Purpose

California Beverage Container Recycling & Litter Reduction Act

Section: 14549.5

". . . the department shall . . . consult with private and public operators of curbside recycling programs, collection programs, and recycling centers concerning . . . "

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Workshop Purpose

- the size of the statewide sample
- appropriate sampling methodologies
- alternatives to exclusive reliance on a statewide commingled rate

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Changes to Our Methodology Presentation Compared to Past Years

- We will still cover what we do and how we do it
- We will share the current recycling environment we see in California
- We will share some data and information derived from our field studies and research
- We will share alternative ways of reimbursing consumers and industry stakeholders for redeemed CRV material
- We will discuss some issues, questions, and complaints from industry stakeholders and consumers

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The Current Recycling Environment in California

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Number of CRV Containers Sold Annually In California

- PET 9.0 billion
- Aluminum 8.6 billion
- Glass 3.0 billion
- HDPE 0.3 billion
- Other 0.2 billion (bi-metal & #3 - #7 plastics)
- Total 21.1 billion

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Annual Value of CRV Material Redeemed

$1.053 billion

Variety of CRV Containers Sold In California

- Thousands of brands, products, and types of containers
  - Small containers
  - Large containers
  - Thin containers
  - Thick containers
  - Light containers
  - Heavy containers

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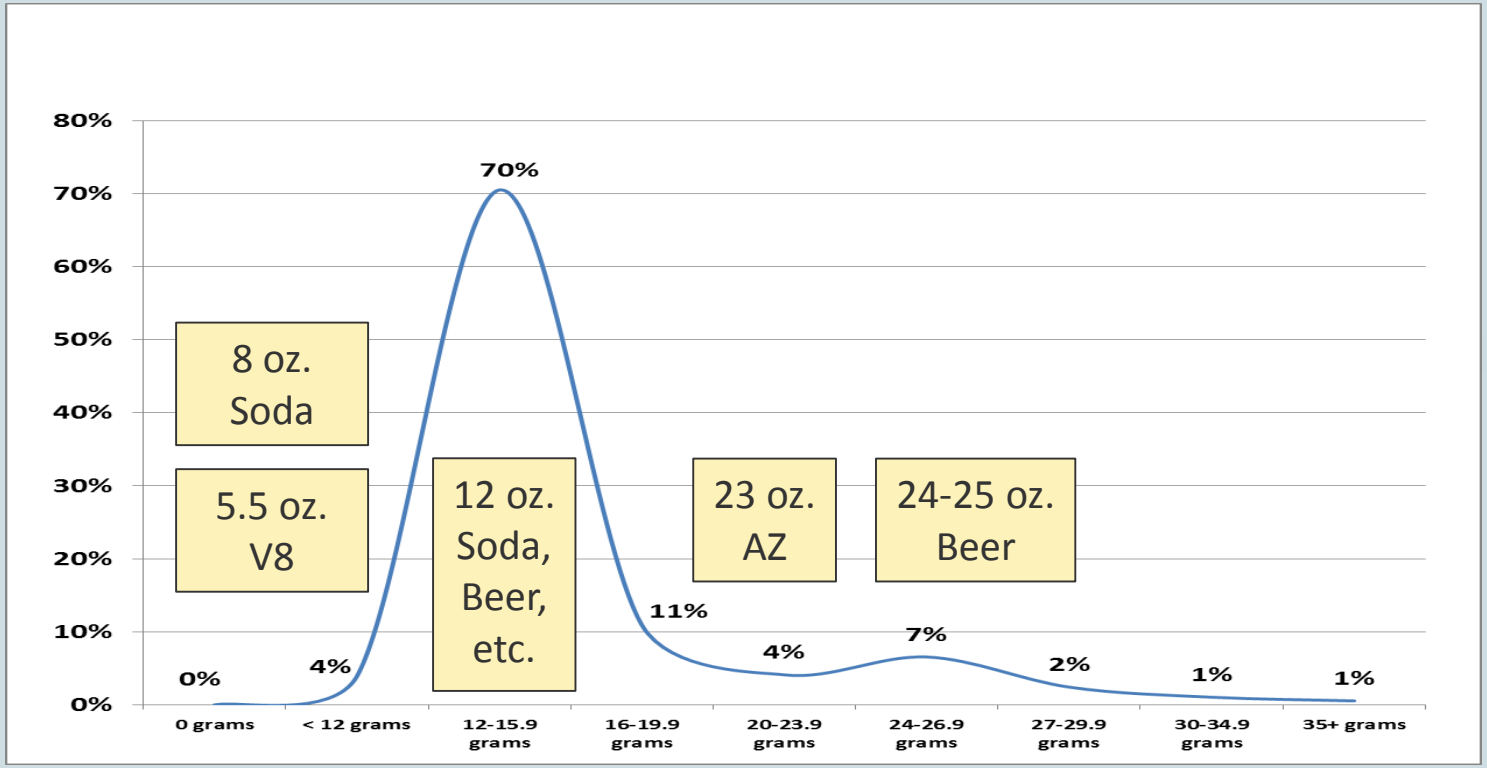
Distribution of CRV AL Containers



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Value of CRV Aluminum Containers

		Value Each	CPP	Paid In	Paid Out	+/-
• 23 oz.	Tea, Juice Blends, etc. (Arizona, etc.)	5¢	18	$0.90	$1.59	+$0.69
• 16-18 oz.	Energy Drinks, Juices, Juice Blends, etc.	5¢	20	$1.00	$1.59	+$0.59
• 24 oz.	Energy Drinks (Monster w/lid, etc.)	10¢	13	$1.30	$1.59	+$0.29
• 12 oz.	Soda, Beer, Tea, Juice, Juice Blend, etc.	5¢	32	$1.60	$1.59	-$0.01
• 24+ oz.	Beer	10¢	17	$1.70	$1.59	-$0.11
• 8 oz.	Various soda brands, etc.	5¢	40	$2.00	$1.59	-$0.41
• 5.5 oz.	Juice, Vegetable Juice, etc. (Tree Top, V8)	5¢	50	$2.50	$1.59	-$0.91

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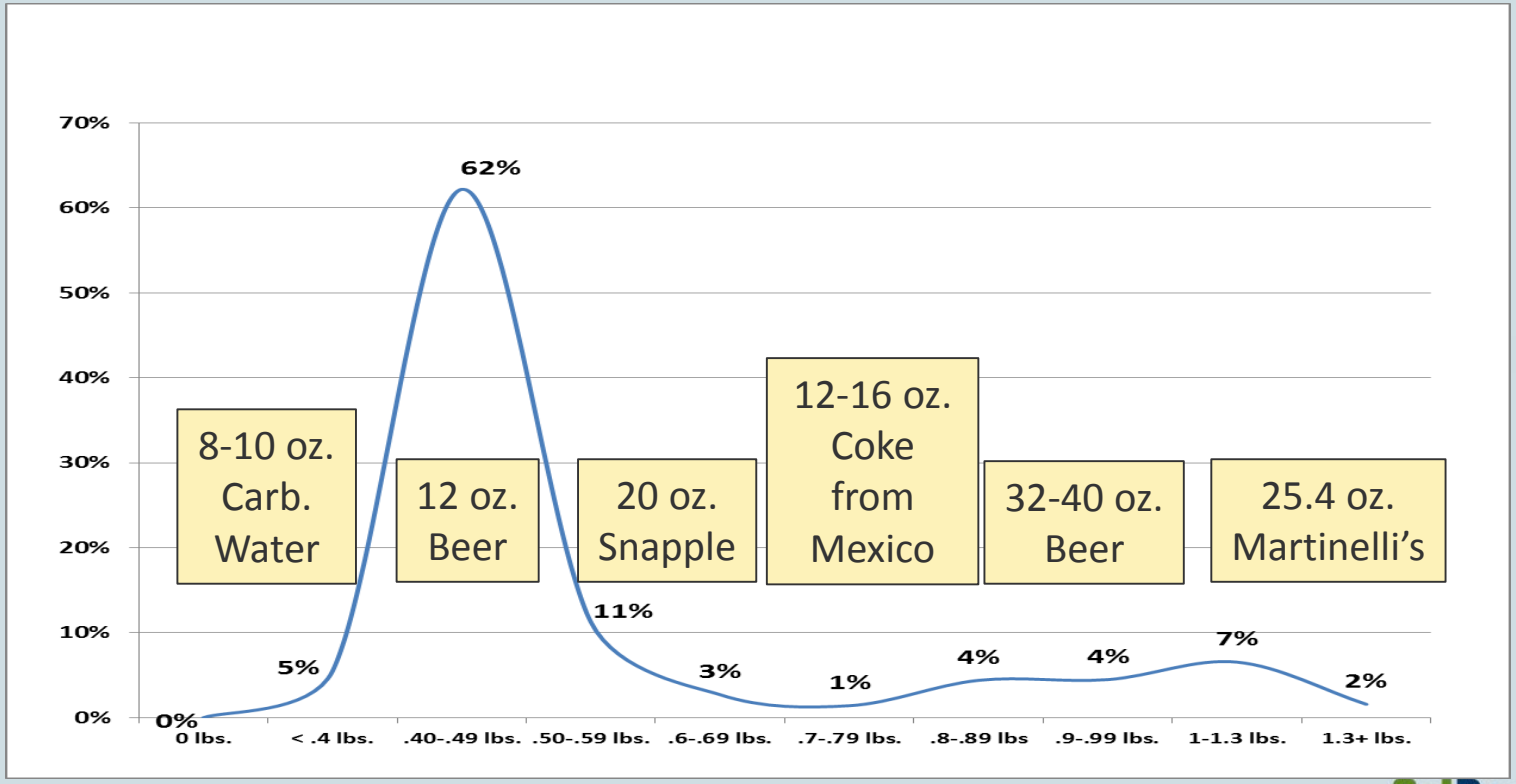
Distribution of CRV GL Containers



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Value of CRV Glass Containers

	Value Each	CPP	Paid In	Paid Out	+/-
• 12-18 oz. Soda	5¢	1.78	$ .089	$ .104	+$.015
• 24+ oz. Beer	10¢	0.94	$ .094	$ .104	+$.010
• 12-20 oz. Coffee / Tea (Starbucks, Snapple, etc.)	5¢	1.93	$ .097	$ .104	+$.007
• 8-12 oz. Juice / Juice Blend	5¢	1.97	$ .099	$ .104	+$.005
• 24+ oz. Carbonated Water	10¢	1.00	$ .100	$ .104	+$.004
• 8-12 oz. Carbonated Water	5¢	2.10	$ .105	$ .104	-$.001
• 12 oz. Beer	5¢	2.25	$ .113	$ .104	-$.009

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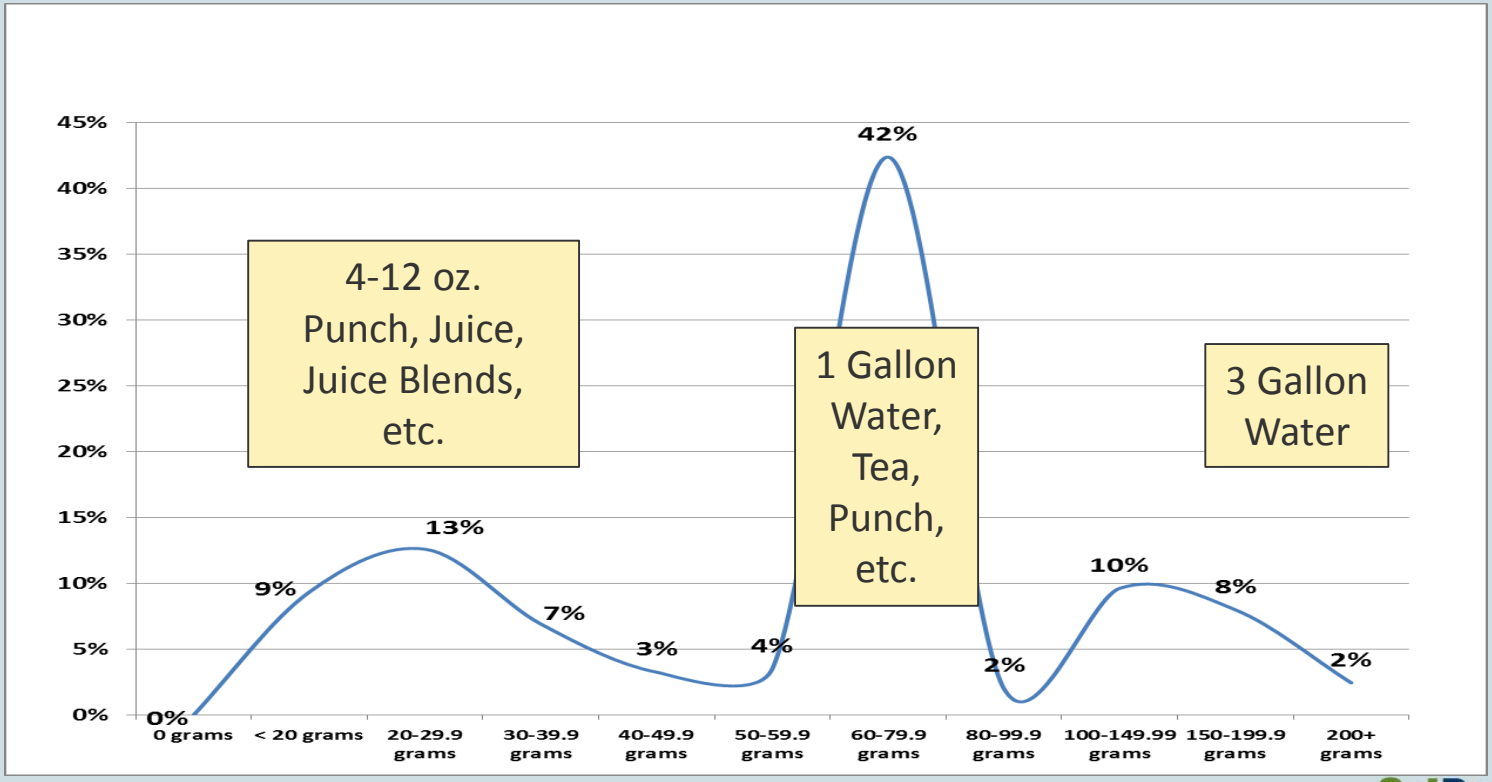
Distribution of HDPE Containers



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Value of CRV HDPE Containers

		Value Each	CPP	Paid In	Paid Out	+/-
• 24+ oz.	Water (1 - 3 gallon containers)	10¢	5.1	$ 0.51	$ 0.59	+$ 0.08
• 24+ oz.	Juice / Juice Blend	10¢	5.6	$ 0.56	$ 0.59	+$ 0.03
• 24+ oz.	Tea	10¢	6.5	$ 0.65	$ 0.59	-$ 0.06
• 24+ oz.	Fruit Drinks / Punches (Water, Sugar, Color)	10¢	6.9	$ 0.69	$ 0.59	-$ 0.10
• 6-16 oz.	Juice (Orange, Apple, etc.)	5¢	15	$ 0.75	$ 0.59	-$ 0.16
• 6-16 oz.	Juice Blend (Sunny D, Tampico, etc.)	5¢	21	$ 1.05	$ 0.59	-$ 0.46
• 6-16 oz.	Fruit Drinks / Punches (Water, Sugar, Color)	5¢	22	$ 1.10	$ 0.59	-$ 0.51

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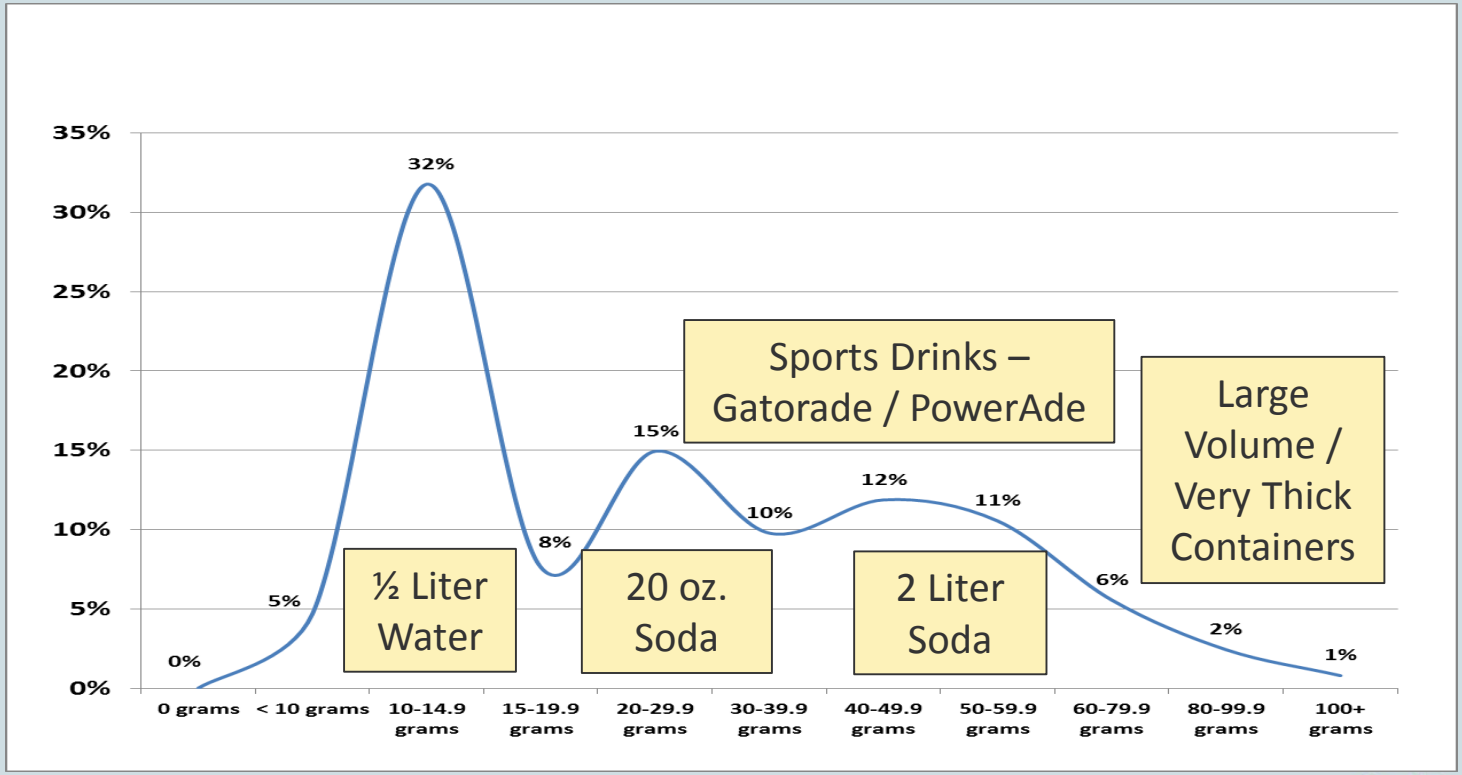
Distribution of CRV PET Containers



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Value of CRV PET Containers

		Value Each	CPP	Paid In	Paid Out	+/-
• 20 oz.	Sports Drinks (thick containers)	5¢	12	$ 0.60	$ 1.16	+$ 0.56
• 12-16 oz.	Sports Drinks (thick containers)	5¢	14	$ 0.70	$ 1.16	+$ 0.46
• 20 oz.	Soft Drinks	5¢	17	$ 0.85	$ 1.16	+$ 0.31
• 24+ oz.	Soft Drinks (includes 1 & 2 liter soda)	10¢	9	$ 0.90	$ 1.16	+$ 0.26
• 24+ oz.	Sports Drinks (thick containers)	10¢	9	$ 0.90	$ 1.16	+$ 0.26
• 24+ oz.	Water (includes 1 gallon containers)	10¢	10	$ 1.00	$ 1.16	+$ 0.16
• 16.9 oz.	Water (half-liter water bottles)	5¢	37	$ 1.85	$ 1.16	-$ 0.69

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How Does Container Value Disparity Impact The Program?

- Consumer Behavior Will Change To Maximize

$$$'s

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How Does Container Value Disparity Impact The Program?

- To get the most money:
  - Consumers will often have lighter containers redeemed by count (i.e.: half-liter water bottles)
  - Consumers will often have heavier containers redeemed by weight (sports drinks, soda, etc.)

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How Can CalRecycle Respond To Comments / Complaints Like . . . ?

- Your rates are wrong!
- You cheat consumers with your rates!
- People aren't getting their 5¢ and 10¢ back!
- You cheat industry stakeholders with your rates!

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Alternative Ways Considered to Reimburse Consumers & Industry Stakeholders for CRV Containers

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Alternative #1 – Everything By Count

- No segregated or commingled rates for any program
- All 21+ Billion containers sold in California would be redeemed by count for all programs (RC, RVM, CS, CP, SP)
  - Pros
    - No “wrong” or incorrect rates to deal with
    - Everyone will get their 5¢ & 10¢
  - Cons
    - Additional costs for industry
    - Additional time required for consumers and industry to redeem containers by count
    - Might slow down redemption of 21+ billion containers

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Alternative #2 – Multiple Rates For Each Material Type

- Multiple per-pound rates for all material types for all programs (RC, CS, CP, SP) (i.e.: half-liter water, 2-liter soda, 1 gallon water, 12 oz. beverage cans, 32 oz. beer, 24 oz. beer, 23 oz. Arizona Tea, 40 oz. beer, 20 oz. beverages, 3 gallon water, 5.5 oz. V8, etc., etc., etc.)
  - Pros
    - Highly accurate per-pound rates that accurately redeem the unique value of the multiple products and containers at recycling programs
  - Cons
    - Dozens of rates to calculate and keep track of
    - Additional costs for industry
    - Additional time required for consumers and industry to sort, weigh, and redeem CRV containers
    - Might slow down redemption of 21+ billion containers

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Alternative #3 – Current Method

- Conduct post consumer surveys of containers to represent the value of loads of containers at the point of redemption. Create rates that are a statewide average value of redeemed containers.
  - Pros
    - Rates that provide most consumers and industry stakeholders with a payment that closely matches the value of the material being redeemed.
    - Reduced costs for industry
    - Time savings for consumers and industry
    - Streamlines redemption of 21+ billion CRV containers annually
  - Cons
    - Some loads of material may be paid too little and some too much

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Our Goal

To ensure payment of the most accurate segregated and commingled rates feasible in order to properly compensate consumers and industry, and to protect the solvency and integrity of the California Redemption Value (CRV) Fund.

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Our Goal

Additionally, we want a California CRV redemption method that is:

- **Easy to utilize (not cumbersome)**
- **Allows for efficient and cost effective redemption of 21+ billion containers annually**

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2016 Rate Study Methodology

Financial Risk Assessment

- Determine financial risk for each program and material type:
  - Determine the monetary value of each material type for each program type
  - Rank the monetary value from high to low

Financial Risk Assessment

- Based on the financial risk:
  - Determine confidence levels and error rates for each program and material type
  - Determine the number of containers to sample for each material for each program type
  - Determine the number of sites to survey for each program type

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2016 CMRS Risk Assessment – All Programs

- **Annual Value of All Materials Redeemed**

$1.053 billion

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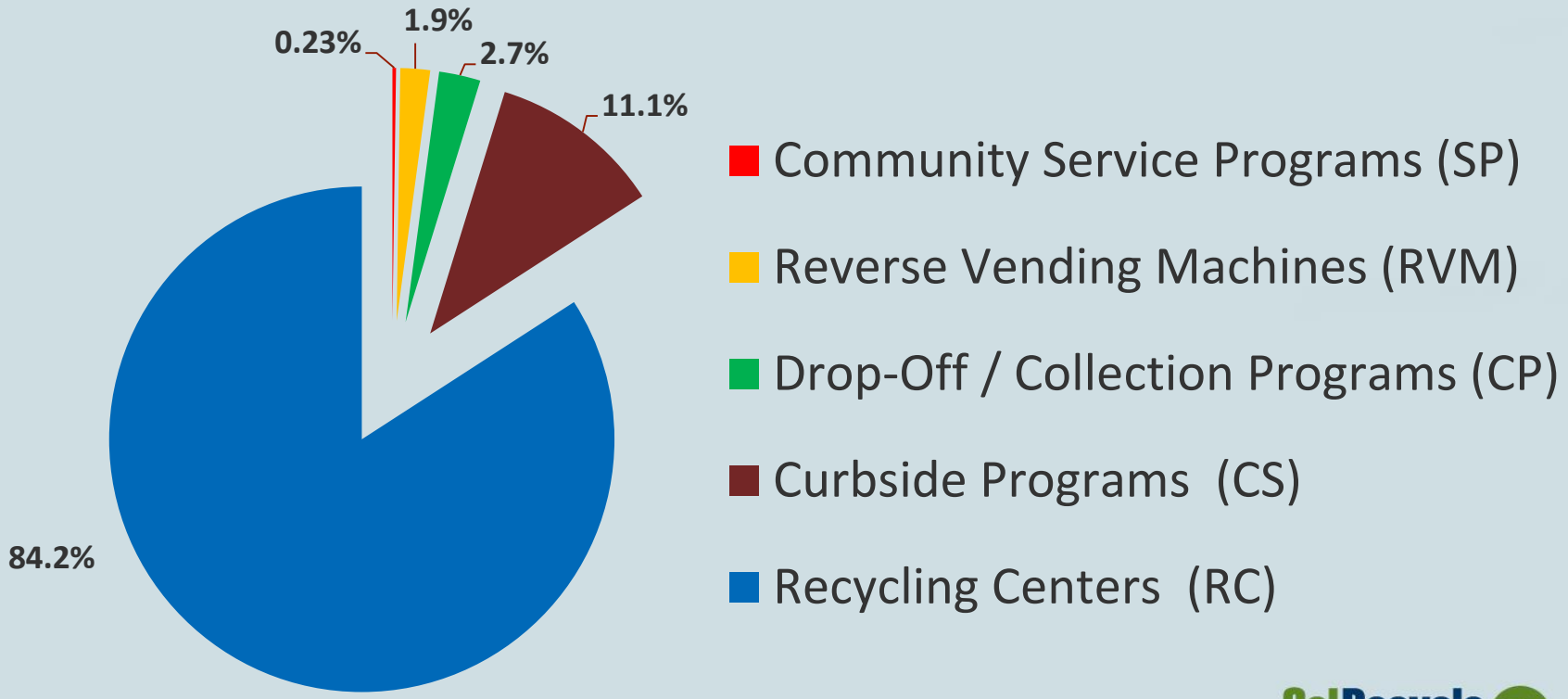
Monetary Value – All Recycling Programs



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Rate Study Sample Size Calculation

- Adjusted based on:
  - Standard Deviation of container sizes and weights
  - Standard Deviation of site survey material
- Based on data from previous studies

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Rate Calculation Goals

<u>Minimum Goal</u>:

95% Confidence Level

5% Error Rate

Most materials are currently surveyed at a

95% Confidence Level with a 2% - 5% Error Rate

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Rate Calculation Goals

<u>For Highest Value Materials</u>:

99% Confidence Level

Less than 2% Error Rates

(RC - Aluminum, Glass, and PET material)

(82% of all redeemed CRV)

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Rate Study Survey Sites

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Number of Sites Surveyed for 2016 Rate Year

• Recycling Centers	72 sites
• Curbside Programs	36 sites
• Drop-Off / Collection Programs	24 sites
• Reverse Vending Machines	24 sites
• Community Service Programs	14 sites
• Total	170 sites

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Site Selection

Population Determination:

- **Currently operational programs**
- **Certified at least eight months during prior fiscal year**
- **Reported volume to DORiiS during prior fiscal year**
- **Not receiving an Individual Commingled Rate (ICR)**

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Site Selection

Sites are grouped by region:

- **Southern California**
  - **Los Angeles, San Diego, Orange, Riverside, San Bernardino, Ventura, Santa Barbara, and Imperial Counties (8 counties)**
- **Northern California**
  - **All other counties (50 counties)**

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Site Selection

- Sites selected using random number generator
- Sites placed in volume strata for each region
- Proportional number of sites selected from each volume strata

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Site Selection

Sites are stratified based on received PET volumes

- **Strata #1 Top 50% of volume (high volume)**
- **Strata #2 Next 25% of volume (medium volume)**
- **Strata #3 Lowest 25% of volume (low volume)**

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2016 Rate Study Periods

- 12 month study / Two six-month survey periods
  - Period #1 - October 1, 2014 to March 31, 2015
  - Period #2 - April 1, 2015 to September 30, 2015
- Same sites surveyed in each six-month period (340 sites)
- The same number of containers are surveyed for each material type at each type of recycling program

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Rate Study Periods

- Surveys are scheduled every month of the year
- Surveys are scheduled most weeks of the year
- Surveys are distributed evenly over all seasons
  - To reflect “seasonality” (all seasons of the year)

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Materials Sampled

- Recycling Centers (RCs)
  - Aluminum
  - Glass
  - HDPE plastic
  - PET plastic
  - Bi-Metal
  - #3 - #7 plastics

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Materials Sampled

- Curbside, Drop-Off / Collection, RVMs, Community Service Programs
    - Aluminum
    - Glass
    - HDPE plastic
    - PET plastic

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2016 Annual Sample: Recycling Centers

• Aluminum	=	14,000+	containers
• Glass	=	14,000+	containers
• HDPE	=	10,000+	containers
• PET	=	40,000+	containers
• Bi-Metal	=	2,000+	containers
• #3 - #7 plastics	=	2,000+	containers
		82,000+	

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2016 Annual Sample: Curbside Programs

• Aluminum	=	3,000+	containers
• Glass	=	5,000+	containers
• HDPE	=	7,000+	containers
• PET	=	7,000+	containers
		22,000+	

2016 Annual Sample: Drop-Off / Collection Programs

• Aluminum	=	2,000+	containers
• Glass	=	3,000+	containers
• HDPE	=	4,000+	containers
• PET	=	4,000+	containers
		13,000+	

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2016 Annual Sample: Reverse Vending Machines

• Aluminum	=	3,500+	containers
• Glass	=	3,500+	containers
• HDPE	=	500+	containers
• PET	=	15,000+	containers
		22,000+	

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2016 Annual Sample: Community Service Programs

• Aluminum	=	1,200+	containers
• Glass	=	2,000+	containers
• HDPE	=	2,500+	containers
• PET	=	2,500+	containers
		8,000+	

Containers Surveyed for 2016 Rates

140,000+ containers

(Aluminum, Glass, HDPE, PET, Bi-Metal, and #3 - #7 plastics)

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Survey Sample Selection

- Recycling Centers
  - After customer transaction completed
  - Confirm “basis” of purchase from customer
  - Random / unbiased selection
  - Survey whole containers only

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Survey Sample Analysis

- Containers purchased as a single material type are counted and weighed into batches
  - RC / RVM – as purchased
    - Includes non-CRV and “contaminants”
  - CS / CP / SP – in “market ready” condition
    - Includes non-CRV and “contaminants”
    - To best represent bales reported to CalRecycle

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Survey Sample Analysis

- Container batches are further sorted, counted, weighed, and analyzed
  - CRV less than 24 oz. (5 cents)
  - CRV greater $\geq$ 24 oz. (10 cents)
  - Non-CRV material
  - Contaminants

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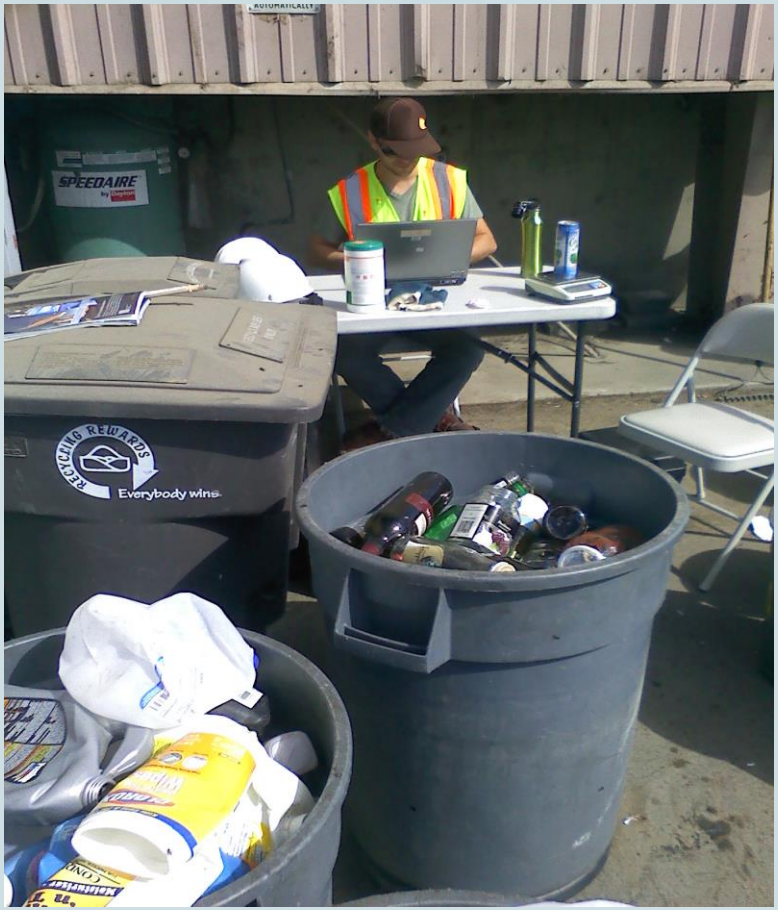

Our Mobile Office

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Calculations

- Data from all surveys are combined by program type
  - Containers Per Pound (CPP)
  - Refund Value Per Segregated Pound (RVSP)
  - Refund Value Per Commingled Pound (RVCP)
  - Other data and information

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Calendar for 2016 CMRS Survey

• Organizing / Planning	Apr. - Sep. 2014
• Public Workshops	May 2 & Oct. 31 2014
• First Period Surveys	Oct. 2014 – Mar. 2015
• Second Period Surveys	Apr. 2015 – Sept. 2015
• Public Hearing for 2016 Rates	Late October 2015
• Notice of 2016 Rates	December 1, 2015
• 2016 Rates Effective	January 1, 2016

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Workshop Purpose - Recap

California Beverage Container Recycling & Litter Reduction Act Section: 14549.5

- **the size of the statewide sample**
- **appropriate sampling methodologies**
- **alternatives to exclusive reliance on a statewide commingled rate**

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Even with all we do . . . we hear

- Your rates are wrong!
- You cheat consumers with your rates!
- People aren’t getting their 5¢ and 10¢ back!
- You cheat industry stakeholders with your rates!

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"RVMs Are Illegal Because They Pay Commingled Rates"

- What is the "segregated" rate at RCs?
  - "Discounted" for non-CRV & contamination in loads
- What is the "commingled" rate at RVMs?
  - "Discounted" for non-CRV & contamination in loads
- They're the same rate!
  - Should we just call them the RC and RVM rates?

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"RVMs Are Illegal Because They Can't Inspect For CRV Labels"

- Based on CalRecycle field survey data, the error rate for RC loads and RVM loads is comparable.
- Non-CRV containers and contaminants in surveyed loads:
  - RC's AL = .37%, GL = 1.01%, HD = 3.40%, PT = 2.26%
  - RVMs AL = .59%, GL = .97%, HD = 6.65%, PT = 1.91%

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How can the RVM PET "commingled" rate be higher than the RC PET "segregated" rate?"

- Based on CalRecycle field surveys, the types and weights of products redeemed at RCs and RVMs are different.
  - Heavier products and containers more often go over the scales at RCs
  - Lighter products and containers more often go thru the RVMs
- Example: the proportion of light-weight, half-liter PET water bottles is:
  - Approximately 60% by count of all RC PET containers
  - Approximately 72% by count of all RVM PET containers
- Smaller and lighter containers, create higher per-pound rates
- Bigger and heavier containers, create lower per-pound rates

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Even with all we do . . . we want to hear more from you!

Questions? / Comments? / Input? / Ideas? / Ideas? / Ideas?

Is there other information or data you would like us to share, find, research, etc. for future presentations or publications?

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Thank You!

If you would like further information about our survey methods or rate calculations, please contact:

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